

What is claimed is:

1. A brewing head of a coffee machine, comprising:

- 5 (a) a rotate to lock assembly, which comprises a handle having two ends, wherein each end of the handle is movably joined to one end of a rotate plate, a rotate rod and a top frame by a fixed pin; wherein one member of a back connection plate is fixedly attached to each side of the top frame and the other member of
10 the back connection plate is movably joined to a support base; wherein the top end of a front connection plate is moveably joined to the other end of the rotate plate, and the lower end of the front connection plate is moveably joined to the support base;
- 15 (b) a filter holder assembly, which comprises a filter, a filter handle, a filter holder and a coffee chamber; wherein the filter contains a flange; and
- 20 (c) a sealing assembly, which comprises a seal ring, inserted between a water connection plate and a water spreader; wherein a water outlet valve, a water outlet spring, the seal ring, the water spreader are fixedly attached to the water connection plate by a water outlet valve holder; wherein the water connection plate is fixedly attached to the top frame; wherein the water connection
25 plate contains an opening for connecting the water connection plate to a hose for delivering heated and/or pressurized fluid from a boiler,
- 30 in the closed position, the handle is rotated downward to move the front connection plate to a vertical position; wherein the seal ring forms a pressure- and/or water-tight seal with the flange of the filter; wherein the rotate-to-lock assembly, the filter holder assembly and the sealing assembly are operatively linked to sustain pressure, advantageously up to at least twenty bars.

35

2. The brewing head according claim 1, wherein the filter holder assembly comprises a flange to provide linear sliding movement of the cabinet filter holder relative to the brewing head.
5
3. The brewing head according to claim 2, wherein the sliding movement of the cabinet filter holder is driven by at least one motor.
4. The brewing head according to claim 3, wherein the sliding movement of the cabinet filter holder is operated by a remote control.
10
5. The brewing head according to claim 1, wherein the opening and closing of the rotate to lock assembly is driven by at least one motor.
15
6. The brewing head according to claim 5, wherein the motor is operated by a remote control.
7. The brewing head according to any one of claims 1 to 6, wherein the cabinet filter holder is inserted into the support base from above; or wherein the cabinet filter holder is inserted horizontally from the side of the support base.
20
8. The brewing head according to any one of claims 1 to 6, wherein top frame is pivotable from the horizontal relative to the support base to the opened position by an inclination angle of between about 5° to 55°.
25
9. The brewing head according to any of the claims 1 to 6, further comprising a generator for producing hot fluid, or a generator for producing hot gaseous fluid, or a generator for producing pressurized hot fluid.
30
10. A brewing head according to claims 9, wherein the generator, boiler or heating system is detached from the brewing head unit, or
35

connected to the brewing head by a hose.

11. A brewing head of a coffee machine, comprising:

5 (a) a rotate to lock assembly, which comprises a handle having two ends; wherein each end of the handle is moveably joined to a cam pin and a top frame; wherein one member of each connection plate is fixably attached to each side of the top frame by hinge pins and moveably joined to the cam pin; wherein the other member
10 of each connection plate is pivotably joined to a support base;

(b) a filter holder assembly, which comprises a filter, a filter handle, a filter holder and a coffee chamber; wherein the filter contains a flange; and
15

(c) a sealing assembly, which comprises a seal ring, inserted between a water connection plate and a water spreader; wherein a water outlet valve, a water outlet spring, the seal ring, the water spreader are fixedly attached to the water connection plate
20 by a water outlet valve holder; wherein the water connection plate is fixedly attached to the top frame; wherein the water connection plate contains an opening for connecting the water connection plate to a hose for delivering heated and/or pressurized fluid from a boiler,
25

in the closed position, the handle is rotated downward to lower the connection plate; wherein the seal ring forms a pressure- and/or water-tight seal with the flange of the filter; wherein the rotate-to-lock assembly, the filter holder assembly and the sealing
30 assembly are operatively linked to sustain pressure, advantageously up to at least twenty bars.

12. The brewing head according claim 11, wherein the filter holder assembly comprises a flange to provide sliding movement of the
35 cabinet filter holder assembly relative to the brewing head.

13. The brewing head according to claim 12, wherein the sliding movement of the cabinet filter holder assembly is driven by at least one motor.
- 5 14. The brewing head according to claim 13, wherein the sliding movement of the cabinet filter holder is operated by a remote control.
- 10 15. The brewing head according to claim 11, wherein the opening and closing of the rotate to lock assembly is driven by at least one motor.
- 15 16. The brewing head according to claim 15, wherein the motor is operated by a remote control.
17. The brewing head according to any one of claims 11 to 16, wherein the cabinet filter holder is inserted horizontally from the side of the support base.
- 20 18. The brewing head according to any one of claims 11 to 16, wherein top frame is pivotable from the horizontal relative to the support base to the opened position by an inclination angle of between about 10°.
- 25 19. The brewing head according to any of the claims 11 to 16, further comprising a generator for producing hot fluid, or a generator for producing hot gaseous fluid, or a generator for producing pressurized hot fluid.
- 30 20. A brewing head according to claims 19, wherein the generator, boiler or heating system is detached from the brewing head unit, or connected to the brewing head by a hose.
- 35 21. The brewing head according to any one of claims 3, or 13, wherein the movement of the cabinet filter holder is controlled by a software

program.

22. The software program of claim 21.

5 23. The brewing head according to any one of claims 5 or 15, wherein the opening and closing of the rotate to lock assembly is controlled by a software program.

24. The software program of claim 23.

10

25. A brewing head of a coffee machine, comprising:

15 (a) a rotate to lock assembly, which comprises a handle having two ends, wherein each end of the handle is joined to a rotation pole having a protruding member 20A, wherein each rotation pole is moveably attached to a protruding member 17A of a support base, wherein the protruding member 20A is moveably joined to one end of a moving rod, wherein the other end of the moving rod is moveably joined to a upper protruding member 1A of a slider plate, wherein the movement of the slider plate is guided by the slider plate holder attached the support base; wherein a shower head is attached to the bottom of the slider plate;

25 (b) a filter holder assembly, which comprises a filter, a filter basket, a filter handle, a filter holder and a coffee chamber; wherein the filter contains a flange; and

30 (c) a sealing assembly, which comprises a seal ring fixed on the shower head; wherein a water spreader is attached to the shower head by a spreader holder; wherein the pressurized or heated fluid and/or steam from the boiler is delivered to the shower head by a tube or pipe,

35 in the closed position, the handle is rotated downward to move

the rotation pole, which causes the moving rod to swing or move downward; wherein the slider plate which is attached to one end of the moving rod lowers the shower head onto the filter basket; wherein the seal ring on the shower head forms a water- and pressure-tight seal, capable of sustaining pressure up to 20 bars.

26. The brewing head according to claim 25, wherein the filter holder assembly further comprises the foammaker for producing foam coffee or coffee with froth.

27. The brewing head according to claim 26, wherein the foam maker is attached to the bottom of the filter basket.

28. The brewing head according to claim 25, wherein the rotate to lock assembly further comprises a stopper 30 attached to at least one protruding member 17A of the support base.

29. The brewing head according to claim 28, wherein the stopper is adapted to prevent rotate to lock assembly from unlocking while under pressure.

30. The brewing head according to claim 29, wherein the stopper is adapted to hold the shower head at a partially open position.

31. The brewing head according to claim 25, wherein the opening and closing of the rotate to lock assembly is driven by at least one motor.

32. The brewing head according to claim 31, wherein the motor is operated by a remote control.

33. The brewing head according to any one of claims 25-32, wherein the cabinet filter holder is inserted horizontally from the side of the support base.

FIG. 1 is a perspective view of the brewing head according to claim 25.

34. The brewing head according to any one of claims 25-32, wherein top frame is pivotable from the horizontal relative to the support base to the opened position by an inclination angle of between about 100°.

5

35. The brewing head according to any of the claims 25 to 32, further comprising a generator for producing hot fluid, or a generator for producing hot gaseous fluid, or a generator for producing pressurized hot fluid.

10

36. A brewing head according to claim 35, wherein the generator, boiler or heating system is detached from the brewing head unit, or connected to the brewing head by a hose or tube.